incentives to withhold and foreclose competitors. Despite Professor Katz's claims, competitive success is not a necessary precursor to demand for additional spectrum rights and Professor Katz does nothing to establish this.[5]

IV. SPECTRAL EFFICIENCY

6. Professor Katz uses an inappropriate measure of spectral efficiency to argue that Verizon uses its spectrum intensively and would put the transferred spectrum licenses to their highest-value.[6] Just as not all spectrum is equal, not all subscribers are equal. Different subscribers use their phones with different intensities. For example, in early 2012, subscribers of Verizon, AT&T, Sprint, and T-Mobile significantly varied in their usage of voice minutes (665, 600, 900, and 986 minutes per month, respectively.)[7] As the subscribers are transitioning from simple wireless devices to smartphones, tablets, netbooks, etc, they vary greatly in their network demands in terms of the usage of voice minutes and data. These differences imply that data demands on wireless networks may differ significantly across carriers. As a result, a measure of spectral efficiency that is based on the number of customers per MHz or MHz-pop can be misleading.
7. The Declaration of Dennis Roberson supports the fact that Verizon's measure of spectral efficiency is misleading by noting "…any comparison of spectrum efficiency using the metric of subscribers/MHz *must* take into account any difference in the relative mix of

[5] Katz Declaration, pp. 6-7, ¶¶12-13.
[6] "By the measure used by Verizon Wireless in its ordinary course of business, and in an independent analysis, Verizon Wireless was found to use spectrum more intensively than T-Mobile, notwithstanding T-Mobile's assertion that it would put the spectrum involved in the proposed transfer to greater use." Katz Declaration, p. 13, ¶26.
[7] RBC Capital Markets, American Tower Corp., Data 2012, January 19, 2012, p.10.

smartphones and feature phones between the networks being compared."[8] Moreover, Roberson notes that "…lower-band spectrum is able to provide a higher spectral efficiency over an area than higher band spectrum."[9]

V. THE POTENTIAL FOR GAIN FROM WITHHOLDING FOR A LARGE INCUMBENT

8. As I explain in my initial declaration, the potential for a large incumbent to gain from hoarding a scarce asset (and foreclosing rivals' access to that asset) is an issue that is well-understood in the economics literature in contexts both involving spectrum and in a broader array of economic settings.[10] In Appendix B to my declaration, I propose a simple illustrative model that depicts the basic economic mechanism of how a larger incumbent will have more incentive to hoard a scarce asset than a smaller incumbent. In particular, in the economic literature and public discussion on spectrum auctions, it is widely recognized that the price a party is willing to pay in an auction is driven by the private value captured by the licensee, whilst ideally the mechanism would maximize the social value created by the licensee.[11] The Commission recognizes this tension between

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[8] Declaration of Dennis Roberson, submitted in support of Reply of T-Mobile USA, Inc., to Opposition to Petition to Deny, Docket 12-4, on March 26, 2012, ("*Roberson Declaration*"), herewith, p. 5, ¶8.
[9] Roberson Declaration, p. 8, ¶10.
[10] For example, see Crocioni, Pietro, "Is allowing trading enough? Making secondary markets in spectrum work," *Telecommunications Policy*, 2009, Vol. 33, pp. 451-468; Cave, Martin, "Anti-competitive behavior in spectrum markets: Analysis and Response," *Telecommunications Policy*, 2010, Vol. 34, pp. 251-261. Borenstein (QJE, 1988) addresses this issue in the context of airlines and airport landing slots and Shaffer (BEJEAP, 2005) and Marx and Shaffer (JEMS, 2010) in the context of large packaged goods manufacturers and supermarket slotting allowances. See also, Richard J. Gilbert and David M. G. Newbery, "Preemptive Patenting and the Persistence of Monopoly," *American Economic Association*, 1982, Vol. 72, pp. 514-526.
[11] Peter Cramton, "The Efficiency of the FCC Spectrum Auctions," *Journal of Law and Economics*, 1998, Vol. 41, pp. 727-736; John McMillan, "Why Auction the Spectrum?" *Telecommunications Policy*, Vol. 19:3, 1995, pp. 191-199.

the private and social values by limiting the amount of spectrum any one firm can hold in any geographical area.[12]

9. I have discussed the literature on hoarding, but another lens through which to see this concern is the economic literature on raising rivals' costs. While it may be costly for a firm to buy spectrum that it will not use (or will use inefficiently or less intensively), if, by doing so, the firm raises competitors' costs (or potential entrants' costs), this can, on net, raise the firm's profits. As Professor Katz succinctly notes elsewhere, "A manufacturer's profits typically are an increasing function of his rivals' costs. Thus, a manufacturer is willing to take costly actions that serve to raise his rivals' costs."[13] While Professor Katz takes issue with the specific details of the model in the appendix of my declaration, he is nearly silent on the content of the body of my declaration. Specifically, he does not appear to attempt to rebut the overall premise of my declaration, that hoarding and raising rivals' costs are potentially important issues in this transaction.

10. Instead, Professor Katz provides two supposed rationales of why Verizon would not withhold and then he attacks the details of the "simple illustrative model" that I provide in the Appendix to my declaration. Furthermore, Professor Katz proposes a counter-model which misses key features of the industry and the issue at hand. Neither of his rationales provides any counter-evidence against concerns about withholding. His critique of my model is erroneous, and his counter-model misleading. I treat each of these in turn, below.

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[12] Peter Cramton, "The Efficiency of the FCC Spectrum Auctions," *Journal of Law and Economics*, 1998, Vol. 41, pp. 727-736, p. 731.

[13] Michael L. Katz , "Vertical Contractual Relations", in *Handbook of Industrial Organization*, Vol. 1, Chapter 11, pp. 655-721 (R. Schmalensee and R.D. Willig eds., 1989), p. 706.

11. Professor Katz's first rationale is that Verizon has "invested billions of dollars per year to increase its capacity and expand output"[14] and he argues that these investments are inconsistent with withholding.[15] The existence of these investments rules out neither withholding in the past nor withholding in the future. Speaking generally, in an environment of growing demand, it is rational that a dominant firm would expand output. However, it might expand output at less than a socially optimal level in order to increase its own profits. As a result, Verizon's behavior is consistent with warehousing.

12. Professor Katz's second rationale is that Verizon uses its spectrum intensively.[16] I discuss the specific claim that Verizon uses its spectrum intensively, above, and the separate technical analysis of this claim by Dennis Roberson addresses it; but even if it were true that Verizon used its spectrum more intensively compared to its competitors, this would not allay concerns about potential withholding. As a matter of economic principle, even if a dominant firm is more efficient than its competitors, that does not mean it is not withholding or that it does not face incentives to withhold. It is possible it could be more productive with its capacity, but chooses not to do so in order to profitably increase prices.

13. Turning to Professor Katz's objections to my model, it is first worth noting the general character of the objections; Professor Katz objects that my model does not capture all of the relevant details of the industry. I concede that my model does not capture all of the

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[14] Katz Declaration, p. 15, Section III.A.1 Title.
[15] Katz Declaration, pp. 15-17, ¶¶31-33.
[16] Katz Declaration, pp. 17-20, ¶¶34-37. Professor Katz notes elsewhere that forward-looking firms will buy spectrum before needing to use it, and that this rebuts concerns that Verizon has bought spectrum that it has not yet developed (See Katz Declaration, pp. 12-13, ¶25). In fact, the fact that a firm may buy spectrum ahead of immediate need is not inconsistent with warehousing. The need for spectrum in the future and the desire to withhold or raise rivals' costs combined will give a firm more incentive to buy spectrum.

details of the industry; that is the nature of a model. At issue, then, is really a dispute about what factors are important to consider in order to inform a conclusion that it can be both possible and profitable for a large incumbent in an industry to gain from hoarding access to a scarce asset. I first address Professor Katz's objections to my model, and then I explain why my model, albeit simple, is ultimately more successful than Professor Katz's in that it addresses the interdependency between firms in the marketplace.

A. The Model of Withholding Is Internally Consistent

14. Professor Katz writes that the model that I present is internally inconsistent because I argue that a firm can both be a price-taker and recognize the implications of its decisions on other firms.[17] In fact, I make it quite clear in the model that "[i]t is difficult to predict the outcome in this market without knowing the game governing competitive interactions that the firms are playing."[18] I then explain that if all firms in the market produced to full capacity, that would lead to a particular outcome.[19] I explain also that under a more general set of assumptions there would be higher market prices, which imply lower output.[20]

15. I then show that, under the simple assumptions which I provide, the larger firm can gain more than the smaller firm from leaving capacity unutilized.[21] Most notably, while Professor Katz criticizes my model, he does not attempt to argue that this implication of the model is not robust. The point of this discussion in my declaration (with the caveats

[17] Katz Declaration, pp. 21-23, ¶¶39-42.
[18] Chevalier Declaration, Appendix B, p. 2.
[19] For example, I state that "[i]f the firms Bertrand compete on price and produce to full capacity, the equilibrium price in this market will be $P^* = c3$ (with unit E in production as well as all of the others)." (See Chevalier Declaration, Appendix B, p. 2).
[20] Chevalier Declaration, Appendix B, p. 3. Firm C withdrawing some capacity which Professor Katz discusses on page 22 of his declaration is one such scenario.
[21] Chevalier Declaration, Appendix B, p. 3.

that Professor Katz chooses to ignore) is that there are scenarios in which the large firm may have an incentive to withdraw capacity from the market rather than use it to produce output. That such an outcome is produced by my model is not surprising. There is, as I cite in the body of my report, a substantial economic literature in which models that have this feature are presented and tested.[22] I further explain in Appendix B that we can use similar intuition to understand situations in which a dominant firm utilizes spectrum, but creates capacity with it less intensively than would another firm.[23]

B. Assumptions about Wireless Spectrum in the Model Are Appropriate to Illustrate Concerns about Spectrum Hoarding

16. Professor Katz asserts that I assume in my model that one unit of spectrum produces one unit of output.[24] In fact, I make no such assumption. In the model, I discuss and model units of "capacity" and do not equate them one-for-one to spectrum holdings.[25] Indeed, I acknowledge, both in Appendix B and throughout the report, that a unit of spectrum is not equated to a unit of output.[26]

17. Professor Katz explains that a carrier faces an increasing marginal cost of turning a given unit of spectrum into output, and that the individual carrier faces an increasing marginal cost curve.[27] This is an accurate description, certainly, of the provision of some wireless services. While I did not model that issue in my simple illustrative model, showing an increasing marginal cost of generating more units of output from each unit of capacity

[22] Chevalier Declaration, fn 29-30.
[23] Chevalier Declaration, Appendix B, p. 3.
[24] Katz Declaration, p. 23, ¶43.
[25] Chevalier Declaration, Appendix B, p. 1.
[26] Chevalier Declaration, Appendix B and Chevalier Declaration, pp. 7-8, ¶¶16-20.
[27] Katz Declaration, pp. 25-26, ¶47.

would not change the basic outcome of my model. In such a model, an incumbent firm may still find it useful to hoard capacity.

18. Professor Katz models an increase in spectrum holdings as having a very specific effect on the cost of a firm. He models an increase in spectrum holdings as increasing the amount of output that the firm could produce for any given level of marginal cost.[28] This may be true for some production technologies and settings, but it is certainly not necessarily true as a general matter. One example is a production technology that requires two or more scarce inputs. The marginal cost of production would not necessarily decrease if the supply of one of the scarce inputs increased, because capacity would remain constrained by the unchanged supply of the other scarce inputs. Another example in which this may not be true is a production technology that relies on one scarce input, but any utilization of that input requires the firm to develop a supplemental technology to convert the added inputs into output. The resulting overall marginal cost of production must then include any marginal costs of implementing the utilization technology. However, if the utilization technology is not implemented, the marginal cost curve remains unchanged. This scenario is particularly applicable to the proposed acquisition. If, like Verizon's existing AWS holdings, the acquisition spectrum remains undeveloped or underdeveloped for a substantial period of time, the effect on Verizon's marginal cost (and therefore output under Professor Katz's MR=MC model) will be either non-existent or smaller than it could be if the spectrum were fully developed. This is discussed further in Section E, below.

[28] Katz Declaration, pp. 25-27, ¶¶47-48.

C. Professor Katz's Discussion of Model Calibration Is Irrelevant and Misleading

19. Professor Katz spins a complicated argument in which he claims that the fact that T-Mobile has complained that it did not have a chance to bid on the SpectrumCo spectrum proves that Verizon will use the spectrum. He argues that my model implies that a larger incumbent might not outbid a smaller incumbent when both firms are planning to use the spectrum, but that the larger incumbent will always outbid the smaller incumbent in the hoarding scenario.[29] My model does not imply this at all. In my model, I illustrate the simple issue that a larger incumbent gets more benefit from hoarding than does a smaller incumbent. I also discuss possible extensions to the model such as more intensive and less intensive uses of spectrum. Furthermore, in the body of my declaration I discuss that a complicated set of issues will affect the usage of and willingness to pay for spectrum assets. For example, because the spectrum at issue in this proceeding is in the AWS band, it is complementary to the existing assets of T-Mobile and MetroPCS.[30]

D. Modeling Quality and Product Differentiation

20. Professor Katz criticizes my model for not incorporating product differentiation and quality.[31] It is not clear that Professor Katz's counter-model incorporates it either. Professor Katz argues that my model specifically implies that larger firms have an incentive to raise quality more than smaller firms, to the extent that quality improvements are a fixed cost.[32] It is somewhat difficult to interpret this comment, because neither he nor I have specified how quality improvements affect consumers' willingness to pay for

[29] Katz Declaration, p. 30, ¶55.
[30] Chevalier Declaration, pp. 9-10, ¶¶22-23.
[31] Katz Declaration, pp. 28-30, ¶50-53.
[32] Katz Declaration, p. 29, ¶53.

the incumbent's product and for the rival's product. Thus, Professor Katz's comments are irrelevant to the issue at hand.

E. Professor Katz's Counter-Model Cannot Inform the Question of whether Verizon Faces Incentives to Hoard Spectrum

21. Crucially, instead of building his marginal cost assumptions into a model of the market for telecommunications services, Professor Katz uses this assumption as a justification for proposing his counter-model, a model of an individual firm's marginal revenue and marginal cost equation. Professor Katz models an increase in spectrum holdings as increasing the amount of output that the firm could produce for any given level of marginal cost.[33] He shows that this effective decrease in marginal cost will lead the firm to increase output.[34]

22. Professor Katz's counter-model treats the effect of the incremental capacity in a vacuum from any potential strategic considerations in the market. In contrast, as I discuss in my declaration,[35] firms must make investments to turn spectrum into productive output. If a large incumbent firm anticipates that its rivals will turn spectrum into productive output, the incumbent firm could buy the spectrum and hoard it, even if it assesses that it would not find it worthwhile to undertake those investments itself. In the circumstance in which the firm does not bear the fixed cost of building out the spectrum, the individual firm's marginal cost would not shift out as in Professor Katz's Figure 3, and thus, the firm would not increase output. However, as illustrated in the body of my report and Appendix B, it is possible that a rival would find it profitable to make investments to use

[33] Katz Declaration, pp. 25-28, ¶¶47-49.
[34] Katz Declaration, p. 27, ¶48.
[35] Chevalier Declaration, p. 7, ¶18.

that same spectrum to produce output.[36] That is, Professor Katz's Figure 3 could be inapplicable to one market participant, while an illustration very like Figure 3 could apply to a smaller market participant.

23. Even if Figure 3 were to be taken as a face-value illustration of market dynamics, it is worth pointing out that Professor Katz, by focusing on the individual firm rather than the market, does not consider other ways in which market outcomes would differ for different purchasers of the spectrum. For example, notice that the steeper the marginal revenue ("MR") curve faced by the firm in Figure 3, the lower the output effect of the marginal cost reduction that Professor Katz has drawn. For example, in paragraphs 50-51 of his declaration Professor Katz takes me to task for not accounting for product differentiation in my model.[37] However, product differentiation implies a less elastic demand curve, which implies a steeper marginal revenue curve, which implies less output increase from the marginal cost curve ("MC") shift that Professor Katz has drawn. Indeed, in particular, if one firm faces an overall steeper demand curve (and thus marginal revenue curve) due to the differentiated quality of its product, the output effect that Professor Katz has illustrated in Figure 3 will be smaller.

VI. JOINT MARKETING AGREEMENTS

24. The JMAs, a series of agreements between SpectrumCo, the individual cable companies – Comcast Cable Communications, LLC ("Comcast), , Time Warner Cable Inc. ("TWC"), Bright House Networks, LLC, ("BHN") and Cox Communications Inc. ("Cox") – and Cellco Partnership d/b/a Verizon Wireless ("Verizon"), govern the

[36] Chevalier Declaration, Appendix B, p. 3 and Chevalier Declaration, pp. 7-8, ¶¶16-20.
[37] Katz Declaration, p. 28, ¶¶50-51.

applicants' coordinated efforts to enter the [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***] market through a Joint Venture. The JMAs include a [***BEGIN HIGHLY CONFIDENTIAL***] [redacted][38] [***END HIGHLY CONFIDENTIAL***] Agent Agreements[39] and Reseller Agreements[40] between Verizon and the individual cable companies.

25. Because Verizon has produced only redacted agreements, it is difficult to identify with precision the potential future harms to competition and consumers. Nevertheless, the JMAs present both horizontal and vertical competition concerns. Firstly, the JMAs represent coordinated action among a group of horizontal competitors. Secondly, the JMAs potentially restrict access to key inputs and distribution channels for wireless

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[38] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] ***END HIGHLY CONFIDENTIAL***]

[39] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] .[***END HIGHLY CONFIDENTIAL***]

[40] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] .[***END HIGHLY CONFIDENTIAL***]

service providers other than Verizon. This concern is exacerbated by the fact that one of the cable companies, Comcast, is substantially vertically integrated and is a supplier of content. Finally, these agreements may diminish the role of Verizon's parent company, Verizon Communications, which is a provider of FiOS services, as an additional horizontal competitor to the cable companies. In this section I first discuss my concerns regarding the agreements between horizontal competitors. I then discuss my concerns regarding the ability of the applicants to restrict access to critical inputs to future mobile broadband services. Finally, I discuss my concerns regarding the potential diminishing of Verizon Communications' FiOS service as a competitor to the cable companies.

A. The JMAs May Limit Competition between Horizontal Competitors

26. Although the JMAs contain [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***], the agreements between Verizon and each of the cable companies contain [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***].

27. The [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***] states that the Joint Venture is [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]

[redacted]."[41] [redacted]

[redacted]." [***END HIGHLY CONFIDENTIAL***][42]

28. Under the JMAs, the cable companies [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***].[43] Similarly, the cable companies are [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***].[44]

29. The [***BEGIN HIGHLY CONFIDENTIAL***] [redacted].[***END HIGHLY CONFIDENTIAL***] As the major carriers deploy LTE, analysts expect mobile broadband to become a more effective substitute for wireline broadband and more

[41] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]. [***END HIGHLY CONFIDENTIAL***].
[42] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***] p. 4.
[43] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***]
[44] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***]

entertainment content, including HD video programming, will be delivered over mobile broadband.[45]

30. Traditionally, the large multiple system operator ("MSO") cable TV companies have operated in geographically well-defined and non-overlapping franchise territories and have not competed with one another. However, with the deployment of LTE and the advent of mobile broadband, there will be an opportunity for the cable companies to extend service offerings beyond their wireline franchise territories using mobile broadband. In this new arena, there is no reason why the cable companies could not compete to provide service offerings through wireless networks. However, [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] .[***END HIGHLY CONFIDENTIAL***] It is important to note that the cable companies entering into this agreement represent, in aggregate, a substantial market force; together they presently account for approximately 60 percent of cable television households and 40 percent of all pay television households.[46]

B. The JMAs May Allow the Applicants to Restrict Access to Critical Inputs to Future Mobile Broadband Services

31. The cable companies and the wireless companies have a complex set of relationships. One increasingly important dimension of those relationships is the role that the cable

[45] Morgan Stanley, "Wireless Broadband Substitution in Focus with *HomeFusion*", March 6, 2012, p. 1; J. P. Morgan, "Smart TV : TV gets Smart and supply chain gets Smart as well", February 20, 2012, p. 22.
[46] National Cable & Telecommunications Association, Industry Data – Operating Metrics Section, Available at <http://www.ncta.com/StatsGroup/OperatingMetric.aspx>, (Last accessed on March 23, 2012); National Cable & Telecommunications Association, Industry Data – Top 25 Multichannel Video Programming Distributors as of Sept. 2011 Section, Available at <http://www.ncta.com/Stats/TopMSOs.aspx>, (Last accessed on March 23, 2012).

companies play in providing content to wireless service providers. The economics literature recognizes efficiency-enhancing reasons why firms that have vertical relationships would enter into contractual relationships. However, the economics literature has also recognized that one goal or effect of vertical contracting may be to raise the costs of competitors in the marketplace or to deter entry.[47]

32. As discussed above, under the JMAs, [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [48] [redacted] ***END HIGHLY CONFIDENTIAL***].[49] The consequence of these agreements is that [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]

[47] For excellent summaries of the literature on vertical contractual relations that explain these issues, particularly the effects of vertical contracts on rivals or potential rivals, see Michael L. Katz , "Vertical Contractual Relations", in *Handbook of Industrial Organization*, Vol. 1, Chapter 11, pp. 655-721 (R. Schmalensee and R.D. Willig eds., 1989); and Patrick Rey and Jean Tirole, "A Primer on Foreclosure", in *Handbook of Industrial Organization*, Vol. 3, Chapter 33, pp. 2145-2220 (M. Armstrong & R. Porter eds., 2007). See also, Michael H. Riordan and Steven C. Salop, "Evaluating Vertical Mergers: A Post-Chicago Approach," *Antitrust Law Journal*, Vol. 63, pp. 513, 527-38 (1995); Thomas G. Krattenmaker & Steven C. Salop, "Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price," *Yale Law Journal*, Vol. 96, pp. 209, 234-38 (1986).

[48] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] .[***END HIGHLY CONFIDENTIAL***]

[49] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] .[***END HIGHLY CONFIDENTIAL***]

[redacted]. [***END HIGHLY CONFIDENTIAL***]

33. The Commission has expressed concern over seemingly analogous agreements in the past, in particular over the access of video programming distributors to the content from vertically integrated cable companies. For example, in the joint venture between Comcast Corporation and NBC Universal, Inc. ("Comcast-NBCU"), the Commission stated that the joint venture would give "Comcast an increased ability to disadvantage some or all of its video distribution rivals by exclusion, causing them to become less effective competitors"[50] and through an improved bargaining position it would lead to "an increase in programming costs for Comcast's video distribution rivals."[51] Furthermore, the Commission found that the Comcast-NBCU joint venture would have the power to exercise an exclusionary strategy and if successful, could allow Comcast to "obtain or (to the extent it may already possess it) maintain market power."[52] Finally, the Commission found that the transaction would give Comcast an incentive and ability to hinder competition from distributors who rely on a relatively more recent but increasingly popular form of video delivery, i.e., online video distribution.[53] The Commission found that Comcast may engage in a variety of anticompetitive strategies, which include, among others:

- restricting access to or raising the price of affiliated online content;

[50] Memorandum of Opinion and Order, In the Matter of Applications of Comcast Corporation, General Electric Company and NBC Universal, Inc., For Consent to Assign Licenses and Transfer Control of Licensees, MB Docket No. 10-56, January 18, 2011, (*"Comcast-NBCU Order"*), p. 17, ¶36.
[51] *Comcast-NBCU Order*, p. 18, ¶37.
[52] *Comcast-NBCU Order*, pp. 13-14, ¶29.
[53] *Comcast-NBCU Order*, pp. 25-26, ¶¶60-61.

- blocking, degrading, or otherwise violating open Internet principles with respect to the delivery of unaffiliated online video to Comcast broadband subscribers; and
- using Comcast set-top boxes to hinder the delivery of unaffiliated online video.[54]

34. To address these concerns, the Commission implemented rules pertaining to agreements between cable operators and content providers that may disadvantage content distributors:

> No cable operator shall enter into any exclusive contracts, or engage in any practice, activity or arrangement tantamount to an exclusive contract, for satellite cable programming or satellite broadcast programming with a satellite cable programming vendor in which a cable operator has an attributable interest or a satellite broadcast programming vendor in which a cable operator has an attributable interest, with respect to areas served by a cable operator, unless the Commission determines in accordance with paragraph (c)(4) of this section that such contract, practice, activity or arrangement is in the public interest.[55]

Additionally, the Commission analyzes the related transactions to assess whether the program access rules sufficiently remedy the potential harm stemming from the transactions. If found otherwise, the Commission may impose remedial conditions on the parties involved in the transaction.[56]

35. Though many details of the agreements have been redacted from the record, there may be similar concerns with respect to the commercial agreements and the Joint Venture between the cable companies and Verizon. With advances in digital compression technologies and video streaming capabilities on wireless devices, wireless carriers are increasingly becoming the distributors of video programming to wireless subscribers of the same kind distributed via cable and satellite providers. As such, the cable companies,

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[54] *Comcast-NBCU Order*, p. 26, ¶61.
[55] 47 C.F.R. §76.1002, (c)(2). A similar provision applies to areas served by cable operators (47 C.F.R. §76.1002, (c)(1)). The program access rules have been expanded in 2007. (See *Comcast-NBCU Order*, pp. 15-16, ¶¶34-35.)
[56] *Comcast-NBCU Order*, pp. 22-25, ¶¶49-59.

especially Comcast, the controlling member of this cable consortium, can properly be thought of as input providers to the wireless service companies. As a result, the transaction between the cable companies and Verizon is subject to the same program content access concerns as that described in the Commission's Comcast-NBCU Order.

36. The Commission should perform a thorough analysis of the transaction and impose the necessary safeguards to protect other wireless carriers from the exclusionary conduct that may arise from this transaction. The Commission should not rely on the assurances of Verizon and the cable companies that they will not use the commercial agreements and Joint Venture to control video programming content anticompetitively. This is in line with the Commission's position in the Comcast-NBCU transaction, where the Commission pointed to the fact that Comcast already had chosen "to withhold content from its rivals, thereby contradicting its contentions that, for whatever theoretical reason, it would not do so in the future."[57]

37. In addition to [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***], the JMAs may allow Verizon to raise rivals' costs for other important inputs to wireless broadband service. Potential concerns include these areas:

    - Backhaul: [***BEGIN HIGHLY CONFIDENTIAL***] [redacted][58] [***END HIGHLY CONFIDENTIAL***]; T-Mobile purchases backhaul services from TWC and Comcast.

[57] *Comcast-NBCU Order*, p. 29, ¶71.
[58] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]. [***END HIGHLY CONFIDENTIAL***]

- Rights of way: [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [redacted] [***END HIGHLY CONFIDENTIAL***] to use its pole attachment agreements to place pico cells.

C. The JMAs May Diminish Verizon Communications as a Competitor to the Cable Companies

38. [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] .[***END HIGHLY CONFIDENTIAL***]

39. Under the JMAs, [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***].[59] It is difficult to imagine that this provision does not have the effect of [***BEGIN HIGHLY CONFIDENTIAL***] [redacted][60] [redacted]

[59] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***].

[60] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]. [***END HIGHLY CONFIDENTIAL***]

[redacted] [***END HIGHLY CONFIDENTIAL***].[61] The agreements, then, imply that [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]. [***END HIGHLY CONFIDENTIAL***]

40. The agreements do allow [***BEGIN HIGHLY CONFIDENTIAL***] [redacted] [***END HIGHLY CONFIDENTIAL***].[62] Thus, if [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]. [***END HIGHLY CONFIDENTIAL***]

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[61] See [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]. [***END HIGHLY CONFIDENTIAL***]

[62] [***BEGIN HIGHLY CONFIDENTIAL***] [redacted]. [***END HIGHLY CONFIDENTIAL***]

I declare under penalty of perjury that the foregoing is true and correct. Executed this 26th day of March, 2012.

Judith Chevalier

EXHIBIT C

EXHIBIT C

SUPPLEMENTAL DECLARATION

OF

PETER CRAMTON

March 26, 2012

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Application of Cellco Partnership d/b/a	)	
Verizon Wireless and SpectrumCo LLC	)	
For Consent To Assign Licenses	)	WT Docket No. 12-4
	)	
Application of Cellco Partnership d/b/a	)	
Verizon Wireless and Cox TMI Wireless, LLC	)	
For Consent To Assign Licenses	)	

SUPPLEMENTAL DECLARATION OF PETER CRAMTON

I, Peter Cramton, hereby declare the following:

Qualifications

1. I am Professor of Economics at the University of Maryland and Chairman of Market Design Inc. My specialty is the design of complex auction markets. Since 1993, I have contributed extensively to the development of spectrum auctions. I have advised ten governments on spectrum auctions, including the United States. I am currently advising the United Kingdom, Canada, and Australia on 4G auctions. I have advised 36 bidders in major spectrum auctions around the world. I have written dozens of widely-cited practical papers on spectrum auctions. This research is available at www.cramton.umd.edu/papers/spectrum.

The spectrum screen must be improved to better measure competitive impact.

2. I have been asked by T-Mobile USA, Inc. ("T-Mobile") to provide further comment on the FCC's spectrum screen as it should be applied to Verizon Wireless' proposed acquisition of spectrum from SpectrumCo and Cox. In particular, I comment on the Declaration

of Professor Katz ("Katz Declaration"), which contends that a change in the screen is not needed. I also address some related issues raised by other commenters.

3. Previously I argued that the current screen is ineffective in measuring the competitive effects of spectrum acquisitions, because the screen unrealistically treats all the mobile broadband spectrum as equal. In the real world, the spectrum bands differ in a variety of ways, the most important being propagation characteristics, but also in other factors such as equipment availability. These differences mean that the capability to deliver mobile broadband depends not on the raw number of MHz held by a carrier, but on the carrier's specific portfolio of types and amounts of spectrum held.

4. The basic motivation for the screen has been the FCC's recognition that spectrum is an essential input in providing mobile communications. Excessive concentration in spectrum holdings would limit competition. As a result, prices would be higher, service would be poorer, and we would see less innovation. The screen is intended not as a final analysis, but one of the tools the Commission has used to examine the effects of spectrum acquisitions. For example, it has been used to identify for further scrutiny transactions that are apt to lead to excessive concentration that will reduce competition. Once identified, these transactions are subjected to further analysis to determine whether they are in the public interest.

5. To be effective, the screen must do two things. It must provide a reasonable rule-of-thumb measure of the competitive effects of spectrum acquisitions and it must identify those transactions that are apt to reduce competition and likely are not in the public interest. It is understood that the screen is not perfect. This is why it is a screen, not a cap. Triggering the screen simply is one (but should not be the only) indication that further scrutiny is needed to confirm whether the transaction is in the public interest. But by the same token, if the screen is